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when the strength of said substrate measured before said substrate is coated with said hard film is taken as 100%, the strength of said silicon nitride member measured after said substrate is coated with said hard film is 70% to 95%.

3. (Amended) A silicon nitride member comprising a substrate formed by sintering of a silicon nitride material, and a hard film comprising a hard component selected from the group consisting of Al_2O_3 , TiCN, TiN and TiC formed on a surface of said substrate, said silicon nitride member characterized in that:

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when the amount of a grain boundary phase as measured at a central portion of said substrate is taken as 100% by volume, at least one of the following conditions (1) to (5) is satisfied:

(1) the amount of a grain boundary phase as measured in the vicinity of a depth of 100 μm from the surface of said substrate is less than 30% by volume;

(2) the amount of a grain boundary phase as measured in the vicinity of a depth of 200 μm from the surface of said substrate is 30% to 50% by volume;

(3) the amount of a grain boundary phase as measured in the vicinity of a depth of 300 μm from the surface of said substrate is 50% to 70% by volume;

(4) the amount of a grain boundary phase as measured in the vicinity of a depth of 400 μm from the surface of said substrate is 70% to 85% by volume; and

(5) the amount of a grain boundary phase as measured in the vicinity of a depth of 500 μm from the surface of said substrate is 85% to 100% by volume.

5. (Amended) A method, for manufacturing a silicon nitride member comprising a substrate formed by sintering a silicon nitride material, and a hard film comprising a hard component selected from the group consisting of Al_2O_3 , TiCN, TiN and TiC formed on a surface of said substrate, said silicon nitride member characterized in that:

when the strength of said substrate measured before said substrate is coated with said hard film is taken as 100%, the strength of said silicon nitride member measured after said substrate is coated with said hard film is 70% to 95%, which method comprises:

adjusting a condition employed in sintering said substrate such that a change in weight of the substrate associated with sintering is 1.5% to 3.5% by weight.

6. (Amended) A method, for manufacturing a silicon nitride member comprising a substrate formed by sintering of a silicon nitride material, and a hard film comprising a hard component selected from the group consisting of Al_2O_3 , TiCN, TiN and TiC formed on a surface of said substrate, said silicon nitride member characterized in that:

when the amount of a grain boundary phase as measured at a central portion of said substrate is taken as 100% by volume, at least one of the following conditions (1) to (5) is satisfied:

(1) the amount of a grain boundary phase as measured in the vicinity of a depth of 100 μm from the surface of said substrate is less than 30% by volume;

(2) the amount of a grain boundary phase as measured in the vicinity of a depth of 200 μm from the surface of said substrate is 30% to 50% by volume;

(3) the amount of a grain boundary phase as measured in the vicinity of a depth of 300 μm from the surface of said substrate is 50% to 70% by volume;

(4) the amount of a grain boundary phase as measured in the vicinity of a depth of 400 μm from the surface of said substrate is 70% to 85% by volume; and

(5) the amount of a grain boundary phase as measured in the vicinity of a depth of 500 μm from the surface of said substrate is 85% to 100% by volume, which method comprises:

adjusting a condition employed in sintering said substrate such that a change in weight of the substrate associated with sintering is 1.5% to 3.5% by weight.

8. (Amended) A cutting tool formed of the silicon nitride member as claimed in claim 1.

9. (Amended) A cutting tool formed of the silicon nitride member as claimed in claim 3.

Please add the following new claims:

10. (New) The silicon nitride member as claimed in claim 1, wherein the hard film consists of a single layer of a single hard component or a multilayer of the same hard component or different hard components.

11. (New) The silicon nitride member as claimed in claim 3, wherein the hard film consists of a single layer of a single hard component or a multilayer of the same hard component or different hard components.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/821,020

12. (New) The silicon nitride member as claimed in claim 1, wherein the silicon nitride material contains a sintering aid in an amount of up to 3.0 % by weight.

13. (New) The silicon nitride member as claimed in claim 3, wherein the silicon nitride material contains a sintering aid in an amount of up to 3.0 % by weight.

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